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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,963	01/30/2004	Shinichiro Mori	1720.1009	2501

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EXAMINER	
NGUYEN, HOANG V	

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 04/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/766,963	MORI ET AL.	
	Examiner	Art Unit	
	Hoang V. Nguyen	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-32 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 17 and 32 is/are allowed.

6)☒ Claim(s) 1,2,6-9,11-16,18,19,23-26 and 28-31 is/are rejected.

7)☒ Claim(s) 3-5,10,20-22 and 27 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 30 January 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 1/30/04 & 6/24/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 15 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites the limitation "a ground pattern part" in lines 1-2 and 3-4. Examiner is unclear these "ground pattern part" are the same. Examiner also cannot determine whether these "ground pattern part" are the same as or different than the first and second ground pattern parts recited in claim 13. Clarification/correction required.

Claim 30 recites the limitation "a ground pattern part" in lines 1-2 and 3-4. Examiner is unclear these "ground pattern part" are the same. Examiner also cannot determine whether these "ground pattern part" are the same as or different than the first and second ground pattern parts recited in claim 28. Clarification/correction required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 11, 12, 13, 18, 19 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Fukuura et al (US 6,556,169 B1).

Regarding claims 1 and 18, Fukuura (Figures 1 and 3) discloses an electronic device providing an antenna element comprising a dielectric substrate 1a having an antenna pattern part 2a; a junction conductor 7a piercing the dielectric substrate, its one end being connected to a feeding point of the antenna pattern part, wherein the other end of the junction conductor is connected to a feeding conductor 12 of the circuit base board 4 at a mounting face side of the antenna element of the circuit base board.

Regarding claims 2 and 19, as applied to claims 1 and 18, Figure 1 of Fukuura shows that a space portion which the junction conductor and the feeding conductor of a side of the circuit base board are made to connect is provided in the dielectric substrate.

Regarding claims 11 and 12, the antenna structure of Fukuura would enable the method of mounting of an antenna element comprising the steps as claimed.

Regarding claims 13 and 28, Fukuura (Figures 1 and 3) discloses an antenna element comprising a dielectric substrate 1a installed on a circuit base board 4 through the intervention of a first ground pattern part 8; a junction conductor 7a, being connected to a feeding point of an antenna pattern part 2a formed in the dielectric substrate at one end portion, and being made to pierce to the dielectric substrate at the other end portion and being made to protrude in a space portion between the dielectric substrate and the circuit base board; a feeding conductor 12, being led to the space portion from an inner layer portion of the circuit base board, and being

connected to the other end of the junction conductor; and a second ground pattern part 9 installed in a lower face side of the feeding conductor.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 6, 7, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuura et al and Ueoka et al (EP 1 096 601 A2).

Regarding claims 6 and 23, Fukuura discloses an electronic device providing an antenna element comprising a dielectric substrate having an antenna pattern part; a junction conductor piercing the dielectric substrate, its one end being connected to a feeding point of the antenna pattern part, wherein the other end of the junction conductor is connected to a feeding conductor of the circuit base board at a mounting face side of the antenna element of the circuit base board. Fukuura fails to specifically teach that the junction conductor having a pillar portion and a flange portion. Ueoka (Figure 2) discloses an antenna element comprising a junction conductor piercing a dielectric substrate and connecting an antenna pattern part and a feeding conductor, wherein the junction conductor comprising a pillar portion 10 and a flange portion 14. It would have obvious to one of ordinary skill in the art to employ the Fukuura antenna with the junction conductor having a pillar portion and a flange portion, as taught by Ueoka, doing so would provide a bigger feeding surface between the junction conductor and the feeding conductor.

Regarding claims 7 and 24, as applied to claims 6 and 23, Figure 2 of Ueoka shows that the pillar portion is thinner than the flange portion.

7. Claims 8, 9, 14, 16, 25, 26, 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuura et al in view of Sakota et al (US 6,388,623 B1).

Regarding claims 8 and 25, Fukuura discloses an electronic device providing an antenna element comprising a dielectric substrate having an antenna pattern part; a junction conductor piercing the dielectric substrate, its one end being connected to a feeding point of the antenna pattern part, wherein the other end of the junction conductor is connected to a feeding conductor of the circuit base board at a mounting face side of the antenna element of the circuit base board. Fukuura fails to further teach that the circuit base board and the dielectric substrate are fixed by an elastically adhesive material. Sakota (col 6, lines 23-27) teaches an antenna-integrated electronic module comprising a substrate being bonded to a circuit base board via an adhesive. It would have been obvious to one of ordinary skill in the art to employ the Fukuura device with the circuit base board being fixed to the dielectric substrate by an elastically adhesive material, as taught by Sakota, doing so would prevent positional displacement between the circuit base board and the dielectric substrate.

Regarding claims 14 and 29, Fukuura discloses an antenna element comprising a dielectric substrate installed on a circuit base board through the intervention of a first ground pattern part; a junction conductor, being connected to a feeding point of an antenna pattern part formed in the dielectric substrate at one end portion, and being made to pierce to the dielectric substrate at the other end portion and being made to protrude in a space portion between the dielectric substrate and the circuit base board; a feeding conductor, being led to the space portion

from an inner layer portion of the circuit base board, and being connected to the other end of the junction conductor; and a second ground pattern part installed in a lower face side of the feeding conductor. Fukuura fails to further teach that the circuit base board and the dielectric substrate are fixed by an elastically adhesive material. Sakota (col 6, lines 23-27) teaches an antenna-integrated electronic module comprising a substrate being bonded to a circuit base board via an adhesive. It would have been obvious to one of ordinary skill in the art to employ the Fukuura device with the circuit base board being fixed to the dielectric substrate by an elastically adhesive material, as taught by Sakota, doing so would prevent positional displacement between the circuit base board and the dielectric substrate.

8. Claims 9, 16, 26 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuura et al in view of Sakota et al, and further in view of Sakamoto et al (US 2003/0020657 A1).

Regarding claims 9 and 26, Fukuura/Sakota teaches the claimed invention, as discussed in claims 8 and 25 above. Fukuura/ Sakota, however, fails to specifically teach that the elastically adhesive material having adhesive layers on both surfaces. Sakamoto (para. 56) teaches an antenna device employing double-faced adhesive to bond the dielectric substrates together. It would have been obvious to one of ordinary skill in the art to employ Sakamoto's double-sided adhesive to bond the circuit base board and dielectric substrate of the Fukuura/Sakato antenna, doing so would enable maximum bond between the circuit board and the dielectric substrate.

Regarding claims 16 and 31, Fukuura/Sakota teaches the claimed invention, as discussed in claims 14 and 29 above. Fukuura/ Sakota, however, fails to specifically teach that the

elastically adhesive material having adhesive layers on both surfaces. Sakamoto (para. 56) teaches an antenna device employing double-faced adhesive to bond the dielectric substrates together. It would have been obvious to one of ordinary skill in the art to employ Sakamoto's double-sided adhesive to bond the circuit base board and dielectric substrate of the Fukuura/Sakato antenna, doing so would enable maximum bond between the circuit board and the dielectric substrate.

Allowable Subject Matter

9. Claims 3-5, 10, 20-22 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 17 and 32 are allowed.

11. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 3 and 20, Fukuura fails to further teach, among other features, that a feeding point of the antenna pattern part is set to a recess portion of the dielectric substrate, and the junction conductor is connected to the feeding point of the antenna pattern part at an inside of the recess portion.

Regarding claims 4, 5, 21 and 22, Fukuura fails to further teach, among other features, a recess portion formed at an opening portion of the through hole correspondingly to a space portion in which the junction conductor and the feeding conductor of a side of the circuit base board are made to connect.

Regarding claims 10 and 27, neither Fukuura nor Ueoka further teaches, among other features, that the flange portion is set larger than the through hole of the dielectric substrate and smaller than a recess portion formed at an opening portion of the through hole.

Regarding claims 17 and 32, none of the prior art of record, either taken singly or in combination, fairly teaches, among other features, a recess portion formed at an opening portion of the circuit base board side of a through hole formed in the dielectric substrate, the recess portion housing the flange portion of the junction conductor.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Patent 5,003,318 discloses a stacked microstrip antenna.
- Patent 6,674,405 B2 discloses a microstrip meanderline antenna.
- Patent 6,825,809 B2 discloses a device comprising stacked microstrip antenna.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang V. Nguyen whose telephone number is (571) 272-1825. The examiner can normally be reached on Mondays-Fridays from 9:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoang Nguyen can be reached on (571) 272-1825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hvn
4/5/05

HOANG V. NGUYEN
PRIMARY EXAMINER